

REMARKS

Applicants have received and reviewed an Office Action dated December 18, 2002. By way of response, Applicants have canceled claims 10-30, 33, and 34 without prejudice, amended claims 1, 3, 4, 6, 8, 31, and 32, and presented new claims 35-44. No new matter is presented. Claims 1-9 and 31, 32, and 35-44 are pending. Applicants submit that the pending claims are supported by the specification.

Support for the recitation in the independent claims and dependent claims reciting parts by weight of peroxyoctanoic acid compared to peroxyacetic acid can be found in the present specification at least at tables on pages 15 and 17 and at page 8, line 14, through page 9, line 21.

For the reasons given below, Applicants submit the amended and newly presented claims are in condition for allowance and notification to that effect is earnestly solicited.

Objection to Claims

The Examiner objected to claims 4 and 32-34 under 37 CFR § 1.75(c) for certain typographical errors. Applicants thank the Examiner for reviewing the claims closely and finding minor typographical errors.

Claims 4 and 32 have been corrected to recite the appropriate concentration of peroxyoctanoic acid.

Claims 33 and 34 have been canceled without prejudice, which renders this objection moot for these claims.

Accordingly, Applicants respectfully request withdrawal of this rejection.

Rejection of Claims Under § 103(a)

The Examiner rejected claims 1-9 under 35 U.S.C. § 103(a) as obvious over Hei et al. (WO 99/51095) in view of Lokkesmoe et al. (WO 94/21122), FSTA abstracts 1999(10):C1223 and 2000(06):J1220 and Taylor. Applicants respectfully traverse this rejection.

Before directly addressing the rejection, Applicants respectfully direct the Examiner's attention to the middle table on page 15 of the patent application as filed. The tables at page 15 describe the compositions employed in Example 4 of this

application. For the Examiner's convenience, the information in this table and the amounts of ingredients recited in claims 1 and 2 are reproduced below:

Chemical	Table at Page 15	Claim 1	Claim 2
Acetic Acid	40%	about 35 to about 45 wt-%	about 40 wt-%
Hydrogen Peroxide	5%	about 3 to about 8 wt-%	about 5 wt-%
Chelating Agent (e.g., HEDP)	0.6%	about 0.1 to about 2 wt-%	about 0.6 wt-%
Octanoic Acid	10%	about 5 to about 15 wt-%	about 10 wt-%
Peroxyacetic Acid	12%	about 8 to about 16 wt-%	about 12 wt-%
Peroxyoctanoic Acid	3%	about 1 to about 5 wt-%	about 3 wt-%

Applicants point out that the claimed amounts include only restricted ranges of ingredients tailored around the amounts used in a composition demonstrated to show unexpected results.

The same is true for amounts listed in the table at the bottom of page 15 of the specification and claims 4 and 32:

Chemical	Table at Page 15	Claims 4 and 32
Acetic Acid	133 ppm	about 133 ppm
H ₂ O ₂	17 ppm	about 17 ppm
Chelating Agent (e.g., HEDP)	2 ppm	about 2 ppm
Octanoic Acid	33 ppm	about 33 ppm
Peroxyacetic Acid	40 ppm	about 40 ppm
Peroxyoctanoic Acid	10 ppm	about 10 ppm

These claimed amounts also include only restrictive ranges of ingredients tailored around the amounts used in a composition demonstrated to show unexpected results. The independent claims to use compositions and flumes (claims 3 and 31) also include ranges tailored around the amounts shown in the table.

Claims 6-9 recite concentrations of ingredients in a concentrate that yields the concentrates of claims 1-2. These claims also recite amounts that are narrowly tailored around amounts listed in a table on page 15 of the application as filed:

Raw Material	Table at Page 15	Claims 6 and 8	Claims 7 and 10
Acetic Acid	54 wt-% (glacial)	about 50 to about 60 wt-%	about 54 wt-%
Hydrogen Peroxide	30 wt-% (of 35% stock)	about 5 to about 15 wt-%	about 10 wt-%
Chelating Agent (e.g., HEDP)	1 wt-% (of 60% stock)	about 0.3 to about 1 wt-%	about 0.6 wt-%
Octanoic Acid	15 wt-% (of 95% stock)	about 10 to about 20 wt-%	about 14 wt-%

These claimed amounts also include only restrictive ranges of ingredients tailored around the amounts used in a composition demonstrated to show unexpected results.

The compositions employed to obtain the unexpected results of Example 4 are those listed in the tables above and the tables on page 15 of the application as filed. Therefore, the evidence of unexpected results described in the patent application and the claimed ranges of ingredients are commensurate in scope.

The presently pending claims also recite that the claimed compositions or flumes have "at least about 1 part by weight of peroxyoctanoic acid for each about 5 parts of peroxyacetic acid." This recitation provides additional description of those compositions that exhibited unexpected results, such as those described in Example 4 of the present patent application, killing three pathogenic bacteria on the surface of a fruit or vegetable. The references cited in this rejection make no mention of such a ratio.

Such compositions also exhibit unexpected results compared to compositions including smaller amounts of peroxyoctanoic acid. These results are summarized below:

Composition	Relative [POOA]	POOA:POAA	% Reduction in <i>Aspergillus</i> sp.	Log Reduction in <i>S. cerevisiae</i>	Log Reduction in <i>E. coli</i>	Log Reduction in <i>Staph. aureus</i>
Page 15 of Present Application	1	1:4		4.8 (10 sec) >5.2 (20 and 30 sec)	5.3 (10 sec) >7 (20 and 30 sec)	>6.6 (10-30 sec)
Presently Claimed A	0.85	1:4.7	97-100 (10 or 20 min) 97-100 (30 or 40 min)			
Presently Claimed B	0.67	1:5		0.9 (10 sec) >5.2 (20 and 30 sec)	3.7 (10 sec) >7 (20 and 30 sec)	5.7 (10 sec) >6.6 (20 and 30 sec)
Comparative Test A	0.5	1:10		0.5 (10 sec) 2.1 (20 sec) >5.2 (30 sec)	2.7 (10 sec) >7 (20 and 30 sec)	5.5 (10 sec) >6.6 (20 and 30 sec)
Comparative Test B	0.15	1:37	0 (10 or 20 min) 22-92 (30 or 40 min)			

↑
Faster than Heil's

These results demonstrate that the presently claimed compositions show unexpectedly large increases in killing any of several microorganisms compared to compositions considered the same or interchangeable in the prior art references cited in the rejection. For example, the presently claimed compositions show unexpectedly greater activity against fungi (yeast (*S. cerevisiae*) and mold (*Aspergillus* sp.)), *E.coli.*, and *S. aureus*.

The references cited in the rejection do not disclose or suggest the claimed ranges or ratios of ingredients. Further, the references cited in the rejection do not disclose or suggest the unexpected result of greater killing at higher ratios of peroxyoctanoic acid to peroxyacetic acid. The references cited in the rejection do not disclose or suggest the compositions or the claimed unexpected effect. Therefore, the cited references neither teach nor suggest the presently claimed invention.

Accordingly, based on the foregoing differences, it is submitted that the references cited in the prior art rejection neither teach nor suggest the presently claimed compositions, and withdrawal of this rejection is respectfully requested.

Summary

In summary, Applicants submit that each of claims 1-9 and 31, 32, and 35-44 are in condition for allowance. The Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below, if the Examiner believes that doing so will expedite prosecution of this application.

Respectfully submitted,

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